AMENDMENTS TO THE SPECIFICATION

Page 3

Please amend paragraph [0009] to read as follows:

[0009] An infrared light 701 is incident from the external free space on an electric conductor 703 coated on a cantilever 702, then concentrating as a near-field at a tip 704 of the electric conductor 703. This near-field is coupled with a region, which is adjacent to the tip 704, on a specimen 706 mounted on a specimen support table 705. And inversely the near-field of the specimen 706 is coupled with and thereby transmitted to the tip 704 of the electric conductor 703 which then acting as an antenna emits it as an infrared light ~~706~~707 into the external free space. Here, both the incident and outgoing infrared lights 701 and ~~706~~707 are condensed by usual optical lenses (not shown). According to this apparatus, moving the cantilever 702 to let it scan allows an image by the entire near-field for the small specimen 706 to be observed at a resolution less than the diffraction limit.

Please amend paragraph [0010] to read as follows:

[0010] However, since the proportion at which the infrared light 701 is coupled to the antenna 703 is proportional to factor ($\varepsilon o / \varepsilon s$) where εo and εs are the dielectric constants of the external space and the specimen support substrate 705, respectively, and$\varepsilon o < \varepsilon s$, the efficiency of the electric conductor 703 as an antenna is rather low. Likewise, the near-field from the small specimen 706 largely is coupled to the specimen support substrate 705 high in dielectric constant and comes to be emitted in its large part into the interior of the specimen support substrate 705

with only its reduced part emitted in the form of the infrared light ~~706~~707. Thus, this system has the problem that the efficiency at which to condense an incident infrared light and the efficiency at which to condense a near-field from a specimen as an outgoing infrared light, namely its light condensing efficiency is low.

Pages 4/5

Please amend paragraph [0014] beginning on page 4 and bridging page 5 to read as follows:

[0014] By the way, in the field of far-infrared techniques there is known an efficient light condensing method for a microfine absorber in a far-infrared region. Fig. 10 is a conceptual view illustrating such an efficient light condensing method conventionally known for a microfine absorber in a far-infrared region. See literature: "Infrared and Millimeter Waves, Volume 10", Millimeter Components and Techniques, Part II, Chapter 1 (1983), ed. by Academic Press Inc. An incoming light 901 is incident into a solid immersion lens made of dielectric 902 and condensed on a planar dipole antenna or planar slot antenna 903 lying at its focal position. Further, the incident light condensed on the antenna is caused to geometrically resonate by the antenna and focused onto a small far-infrared absorber 904 disposed at the center of the antenna. According to this method in which a far-infrared light is caused to geometrically resonate by an antenna, it is possible to absorb the far-infrared light efficiently and at due sensitivity. Consequently, if a specimen to be measured is disposed in place of the far-infrared absorber 904

at a position at which it is disposed, then it is possible to take out the ~~near-filed~~near-field 905 efficiently.

Pages 5/6

Please amend paragraph [0018] beginning on page 5 and bridging page 6 to read as follows:

[0018] In order to achieve the first object mentioned above there is provided in accordance with the present invention in a first aspect thereof an infrared light condensing apparatus, characterized in that it comprises: a solid immersion lens for accepting an incident light or emitting an outgoing light, the said solid immersion lens having a base plane on which a specimen is to be disposed; an antenna having a probe disposed away from a base plane of the said solid immersion lens at a distance not more than 1/4 of an effective wavelength of the light; a holder means for retaining the said antenna; and a position control means for controlling the position of a tip of the said probe by means of the said holder means, whereby operating the said position control means allows:

the incident light to concentrate as a near-field at a desired position of the specimen on the base plane of the said solid immersion or

a ~~near-filed~~near-field from a desired position of the specimen to be converted into a propagating wave corresponding thereto and then the propagating wave to be emitted as the said outgoing light from the said solid immersion lens.

Page 8

Please amend paragraph [0026] to read as follows:

[0026] The present invention provides in a second aspect thereof an infrared light condensing apparatus characterized in that it comprises: a solid immersion lens for accepting an incident light or emitting an outgoing light; an antenna disposed on a base plane of the said solid immersion lens; a holder means for retaining a specimen adjacent to the said antenna; a position control means for controlling the position of the said holder means, whereby operating the said position control means allows:

the incident light to concentrate as a near-field at a desired position of the specimen retained by the said holder means or

a ~~near-filed~~near-field from a desired position of the specimen to be converted into a propagating wave corresponding thereto and then the propagating wave to be emitted as the said outgoing light from the said solid immersion lens.

Pages 10/11

Please amend paragraph [0035] beginning on page 10 and bridging page 11 to read as follows:

[0035] The present invention will better be understood from the following detailed description and the drawings attached hereto showing certain illustrative forms of implementation of the present invention. In this connection, it should be noted that such forms of implementation illustrated in the accompanying drawings hereof are ~~intedgeed~~intended in no

way to limit the present invention but to facilitate an explanation and understanding thereof. In the drawings,

Fig. 1 is a schematic view illustrating an infrared light condensing apparatus that represents a first form of implementation of the present invention;

Fig. 2 is an enlarged view of an essential part of the apparatus shown in Fig. 1 for illustrating an operation thereof;

Fig. 3 is a schematic view illustrating a modification of the apparatus of Fig. 1;

Fig. 4 is a schematic view illustrating an infrared light condensing apparatus that represents a second form of implementation of the present invention;

Fig. 5 shows at (a) and (b) the constructions of a planar dipole antenna and a planar slot antenna, respectively, that can be formed on a base plane of a solid immersion lens;

Fig. 6 is a schematic view illustrating an infrared light condensing apparatus that represents a third form of implementation of the present invention;

Fig. 7 shows results of measurement of an edge current based on the quantum Hall effect according to an apparatus of the present invention wherein (a) is a graph illustrating the quantum Hall effect for a measured specimen and (b) shows distributions of the measured edge current:

Fig. 8 is a makeup diagram of a near-field light condensing apparatus according to the prior art;

Fig. 9 is a makeup diagram of a conventional light condensing apparatus for use in Raman scattering: and

Fig. 10 is a makeup diagram of a conventional light condensing apparatus for use in a far-infrared absorber.

Page 12

Please amend paragraph [0038] to read as follows:

[0038] The cantilever 5 is controlled in position by a conventional control means as well known, e. g., with the AFM. For example, if an amount of ~~bedgeing~~bending of the cantilever 5 due to an atomic force between surface atoms of the tip of the probe 4b and the specimen 6 is taken as an angle of reflection by a rear surface of the cantilever 5 of a laser light impinging thereon, and the amount of ~~bedgeing~~bending is maintained constant by adjusting the height so as to be the angle constant, it is then possible to control and maintain the distance between the tip of the probe 4b and the specimen 6 at an accuracy within 0.1nm. Also, high-precision positioning control in planar directions can be achieved using a piezoelectric stage.

Page 16

Please amend paragraph [0048] to read as follows:

[0048] The resolution in this apparatus is determined by the size of the microfine area 12a located at the center of the bowtie antenna 14, 16. The microfine area 12a can be varied in size in terms of its one side length from 10 microns to 0.05 micron ~~depedgeing~~depending on a particular wavelength of the infrared light and a particular space resolution required in measurement. The bowtie antenna, which can be readily made up, e. g., by forming a pattern

metal film on the base plane of a solid immersion lens, makes it possible to build up an apparatus with a resolution optimal to a particular specimen to be measured and a particular purpose of measurement.

Pages 16/17

Please amend paragraph [0050] beginning on page 16 and bridging page 17 to read as follows:

[0050] It should be noted here that the planar dipole antenna and the planar slot antenna shown in Fig. 5(a) and Fig. 5(b) may be modified in a variety of ways ~~depedgeing~~depending on the nature and shape of a specimen to be measured. It is only essential that the size of the required near-field area be definitely established and that according to the size established the antenna be designed so that its geometry be adequate to cause an incident light to create geometrical resonance with the antenna and their impedance matching conditions are met. These requirements in conjunction with the known theory relating to an antenna on a medium allows an antenna of this type to be designed optimally according to a particular specimen to be actually measured in practice and a particular wavelength of the infrared light used. See literature: "Infrared and Millimeter Waves, Volume 10", Millimeter Components and Techniques, Part II, Chapter 1 (1983), ed. by Academic Press Inc.